U.S. Partner Report

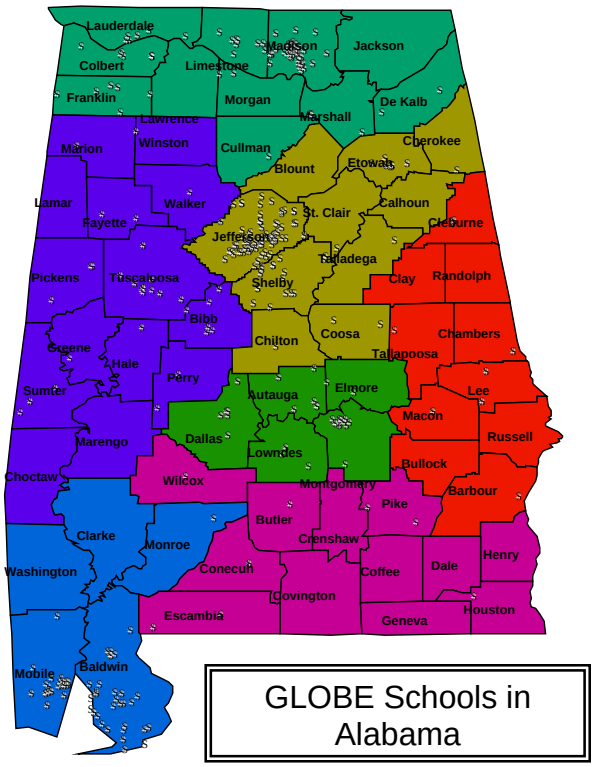
GLOBE in Alabama: 2002 Partnership Status Report

Gregory N. Cox
GLOBE in Alabama
320 Sparkman Drive
Huntsville, AL 35805
Telephone: 256-961-7738
greg.cox@nsstc.uah.edu

Jennifer K. Lockett
GLOBE in Alabama
300 S. Monterey St.
Mobile, AL 36604
Telephone: 251-476-5196
jlockett@bellsouth.net

GLOBE in Alabama continues to expand across the state. Since the partnership's inception in January 1997, **393** (**+56 in 2002 so far**) schools, and **696** (**+86 in 2002 so far)** teachers in over 50 counties and 70 school systems have become involved. This representation includes both public and private K-12 institutions. In 2002, our emphasis has been on reaching multiple teachers in a school, rather than single teachers in a school. This resulted in a lower increase in overall numbers than the previous years. Though there are high-density pockets of GLOBE schools in the Mobile, Birmingham and Huntsville areas of Alabama, in the past year there has been an a great deal of expansion in the rural areas of the state as well.

In 1999, GLOBE in Alabama introduced a teacher mentoring program designed to identify GLOBE master teachers that would provide technical assistance, feedback and coaching for other GLOBE teachers, either in person or over an electronic network. With the support of Governor Siegelman and funding from the Alabama Department of Economic and Community Affairs, Science, Technology and Energy Division, we have now established at network of seven mentors across Alabama. These mentors work within the framework of individual schools to ensure the development and implementation of the GLOBE Program can be sustained over the long term. In schools where these GLOBE mentor teachers are working, we have seen nearly a 100% increase in GLOBE student data reporting.



GLOBE in Alabama has gained numerous affiliate organizations since its inception in 1997. These include the Alabama State Department of Education, University of Alabama at Birmingham, the University of Alabama in Tuscaloosa, the University of South Alabama, Troy State University, Birmingham City Schools, Montgomery County Schools, the McWane Science Center, the Archdiocese of Mobile, the University of North Alabama, and the Children's Hands on Science Museum in Tuscaloosa.

GLOBE in Alabama is currently approaching the business community in Alabama to encourage their support. Our goal is to demonstrate that integrating the rich and commanding content of GLOBE supplementing science, math and technology curriculum, coupled with our high-quality educator professional development, deepens and improves the quality of the instruction and has the power to transform Alabama students into w*orld-class learners* in science and mathematics. We believe this will help meet the need for expanding Alabama's skilled workforce, thereby bringing more people into the productive workforce. This will make a tangible difference in people's lives by providing a pathway to better jobs in Alabama.

U.S. Partner Report

University of Alaska Fairbanks GLOBE Partnership

Elena Bautista Sparrow
School of Agriculture and Land Resources Management
University of Alaska Fairbanks, P.O. Box 757200, Fairbanks, AK 99775-7200
Telephone: 907-474-7699 Fax: 907-474-6184
Email: ffebs@uaf.edu

Summary

The Alaska GLOBE Program began through the establishment of the University of Alaska Fairbanks (UAF) GLOBE Partnership in November 1996 through the UAF Center for Global Change and Arctic Systems Research (http://www.cgc.uaf.edu/) to train and support GLOBE teachers throughout Alaska. Through the efforts of this partnership, additional funding has been obtained to develop and test a new model of inquiry, local environmental studies and global research that combines Native observations and local knowledge with western science i.e. GLOBE and other climate change research projects.

GLOBE training and collaboration efforts with other science education programs are on the rise. Teacher and student support activities include email discussions, phone calls, and classroom visits, alignment of GLOBE activities with national and state science standards, guidance in building science units and lesson plans that are also culturally relevant. Graduate, undergraduate and teacher accreditation courses based on the GLOBE program are offered in the School of Agriculture and Land Resources Management and also in the School of Education at UAF.

GLOBE implementation activities include data gathering and reporting on the GLOBE data server, piloting new GLOBE plant phenology protocols and GLOBE Arctic POPs protocol, using GLOBE to teach environmental science, and, use of GLOBE to support science concept and skills development, technology use, student class inquiry and individual student research projects.

GLOBE Teacher Training

The 2nd two-week summer institute "Observing Locally, Connecting Globally" was held in Fairbanks June 4-16,2001. GLOBE combined with Native Observations/knowledge and best teacher practices were the institute's focus areas. Twelve teachers from Barrow, Chikaloon, Eagle, Fairbanks, Holy Cross, North Pole, Sand Point, and Susitna, completed the training. Ninety-two percent of these teachers have implemented GLOBE in their classrooms, seventy-eight percent have reported data to the GLOBE server.

A split session GLOBE Training Workshop was held in Kodiak from October 12 – 20, 2001, where another 9 teachers and 2 Kodiak school district education specialists completed the training. Another split session GLOBE Training Workshop was also held in Haines from March 7- May 2, 2002 where two teachers completed the training.

GLOBE Training in collaboration with the US Bureau of Land Management/Campbell Creek Science Center GLOBE Partnership in Anchorage

A GLOBE workshop was held at the Tetlin Wildlife Refuge in Tok on July 24-26, 2001. Our partnership provided a GLOBE trainer and some of the GLOBE equipment and supplies; so did the other GLOBE Partnership. Five teachers and an environmental specialist completed the training on Atmosphere, Hydrology and Plant Phenology Protocols.

A split session GLOBE workshop was held in Anchorage Oct. 12, 2001- April 20, 2002. The Anchorage partnership provided the trainers, the GLOBE equipment and supplies while our partnership provided UAF course credits. Three teachers and an Anchorage School District Education Specialist completed the GLOBE training.

Other Collaborative Efforts

Other ongoing partnerships with the UAFGLOBE program in Alaska include three National Science Foundation (NSF) funded projects: 1) Global Change Education Using Western Science and Native Observations, 2) Seasons: the Global Plant Waves, and 3) the Long-term Ecological Research (LTER) Schoolyard projects. Others are: 1) the Alaska Environmental Education Outreach Program funded by the Institute of Tribal Environmental Professionals at Northern Arizona University and the Environmental Protection Agency (EPA), 2) the Alaska Boreal Forest Council School Project "Tapping into Spring", 3) the Youth Farm Ecology Program on the Calypso Farm and Ecology Center in Fairbanks, 4) the UAF Alaska Cooperative Extension Service 4-H Fisheries Program, 5) the Interior Distance Education of Alaska (IDEA), the home schooling/correspondence program of the Galena School District for students throughout Alaska, 6) Alaska Alliance for Earth Systems Education: Improving Understanding of Climate Variability and Its Relevance to Rural Alaska, 7) the Alaska Experimental Program to Stimulate Competitive Research (EPSCoR) Education Outreach Program, and 8) Future Farmers of America in Alaska. Collaborative partners' goals are similar to GLOBE's. Teachers are trained to teach process- and inquiry-based science, math and technology skills using hands-on methods aligned with state and nationally set standards for education. Also, classrooms are partnered with science, engineering and math professionals in the university, community, private business and government agencies and with local community experts.

GLOBE Training for Trainers: First GLOBE Arctic Persistent Organic Pollutants (POPs) Workshop

The first GLOBE Arctic POPs Workshop held in Fairbanks, Alaska, July 29- Aug.3, 2001 was hosted by our partnership. Four Alaska high school teachers and two principals participated. Other participants included teachers and principals from Norway, Iceland, Sweden, Finland, Canada, Russia. The students from high schools in these circumpolar north countries have been collecting fish from their local waters and sending the prepared samples to the Norwegian Institute for Air Research (NILU). The students have been doing other GLOBE protocols and will be analyzing results obtained from chemical analyses of their samples and those of samples obtained in other participating countries. The GLOBE Arctic POPs project is a collaboration among NILU, GLOBE Norway, the Norway Ministry of Education and GLOBE in the U.S., Iceland, Sweden, Finland, Canada and Russia.

GLOBE Training for Trainers for Tribal Colleges: Weaving Common Threads

The first GLOBE Training for Trainers was held at Northern Arizona on August 5-12, 2001. The Partnership coordinator was the trainer for the phenology protocols and also brought Inupiat elder Jonas Ramoth. He introduced the atmosphere protocols by sharing his traditional knowledge and observations about the weather in Selawik where he was born, raised and earned a living for most of his life. Elders from other parts of the country similarly participated as part of the training team.

Presentations

Presentations about the GLOBE Program were given at the 1) Environmental Education Workshop sponsored by the Gulf Environmental Monitoring Organization, 2) Meetings in Kotzebue, to Fish and Game biologists, National Parks Service ED specialist, School District personnel, UAF Rural Alaska faculty, and school teachers, 6) Meetings in Nome to school teachers and principals, 3) 6th Annual GLOBE Conference, and, 4) School of Agriculture and Land Resources Management Seminar and Advisory Board Meeting. Other GLOBE related presentations were: 1) "Pre-college Student Participation in Long Term Ecological Research" at the Fourth Circumpolar Agricultural Conference held in August 2001 at Akureyri, Iceland, 2) "Global Change Education Using Western Science and Native Observations" at the Alaska Science and Math Teachers Conference, 3) "Pre-college Students Contributing to Long-Term Climate Studies" at the Fall Meeting of the American Geophysical Union held in San Francisco in Dec. 2001, 4) "Alaska Experimental Program to Stimulate Competitive Research (EPSCoR) Education Outreach Program"in Anchorage, 5) "Observing Locally, Connecting Globally: Global Change Education in Alaskan Communities at the Bilingual, Multicultural and Equity Education Conference in Feb.2002 and, 6) "Tribal, Native and Global Ecology Education" at the Mini-Education Symposium sponsored by LTER held in Washington D. C. on June 19, 2002.

Student Research Projects

Four GLOBE related projects conducted by students from Monroe High School in Fairbanks were accepted for presentation at the 2002 Alaska Statewide High School Science Symposium. One placed first in the Chemistry Session, another placed second and another placed fourth in the Environmental Sciences Session. Two competed for the final competition to go the National Junior Science and Humanities Symposium.

Publications:

Sparrow, Elena B. 2001. Innovative Ways of Implementing Global Change Education in K-12 classrooms. Agroborealis 33(1):30-33.

Sparrow, Elena B**.** 2001. GLOBE: A New Model in K-12 Science Education. Global Glimpses 9: 1-4.

Sparrow, Elena B**.** 2001. Pre-college Students Contributing to Long-Term Climate Studies. Eos Transactions, American Geophysical Union 82: 47.

U.S. Partner Report

Fresno GLOBE Partnership Annual Report - 2001/2002

Dave Williams, Training Coordinator
1910 E. University Avenue
Fresno, California 93703-2988
Telephone: 559-498-1515 Fax: 5559-498-4228
Email: dwilliams@globe.gov

Fresno GLOBE continues to support the 16 counties traditionally served in the past and has expanded to include areas of need such as the Sacramento Valley-Nevada City-Lake Tahoe and the remote northern California coast.

Teacher training was redesigned to align with the new GLOBE model that allows certification of teachers after completion of training in any one of the protocol areas. This new model allows us to incorporate inquiry-based instruction and is more suitable to meeting the needs of teachers and trainers alike.

The new training model consists of a series of one-day workshops approximately three weeks apart, usually held on Saturdays. The first of a series ideally includes a Friday evening session where dinner is provided, participants see a PowerPoint presentation on GLOBE in the Great Central Valley, teacher kits are distributed and the binders assembled, and the densiometers and clinometers are assembled. The setting is casual and time is allowed for socializing.

Each of the subsequent workshops is focused on a protocol area. Since teachers may elect to attend only one of the days each one necessarily includes familiarization with the GLOBE web site, practice in data entry, use of the GPS units and site selection.

Construction of new science classrooms and computer lab facilities at Kingsburg High School (40 km southeast of Fresno) has provided us with a new base of operations for teacher training.

Fresno GLOBE completed its original five-year contract this June and has renewed the Partnership with funding for training from the City of Fresno Water Conservation Program. An additional $1,000 will be received annually to provide reimbursement for substitute teachers that will allow several members of the Training Team to conduct school site visits to schools for follow up and support.

As of May, Mr. Thomas Sabatino, GLOBE Trainer and former Director of the NASA Regional Teacher Resource Center at CSU Fresno, has assumed the role of our Partnership Coordinator. The Fresno GLOBE Training Team consists of:

Tom Sabatino, Partnership Coordinator	Email: thomass@csufresno.edu
Peggy Foletta, Master Trainer	Email: pfolett@telis.org
Steve Harness, Trainer	Email: Sharness78@aol.com
Scott Kruse, Trainer	Email: skruse@lightspeed.net
Dave Williams, Training Coordinator	Email: dwilliams@globe.gov

Training 2001/2002

Fresno GLOBE has trained over 320 teachers at more than 180 school sites.
Teacher training workshops during the past year were scaled back considerably for a number of reasons. GLOBE Fresno decided to concentrate on developing a plan to provide direct support to teachers previously trained that have yet to implement the Program and/or submit data. Time was also spent on revision of our training model to include more inquiry-based approaches and a structure that better suits the needs of our target audience.

Regionally we conducted four small workshops of 6-7 participants using only one or two Trainers at each. These trainings allowed for more personal attention to individual questions and concerns and provided more time for reflection.

The Partnership also provided a Trainer to conduct two workshops for the NASA Ames Research Center Partnership at Moffett Field.

Collaborations

Fresno GLOBE now has 15 Affiliates that provide support and enhancement to our Partnership. Links to our Affiliates listed below can be found on our Partner web page.

CREEC Network Region VII, Fresno, CA
California State University, Fresno, Fresno, CA
Central California Science Education Leadership Association (CCSELA), Fresno, CA
Central California Science Teachers Association (CCSTA), Fresno, CA
Central Valley Regional Professional Development Consortium (CVRPDC), Hanford, CA
Central Valley Science Project (CVSP), Fresno, CA
Central and Southern Sierra Wilderness Education Project (WildLink), Yosemite, CA
City of Fresno Water Conservation Program, Fresno, CA
Fresno County Office of Education, Fresno, CA
Fresno Pacific University, Fresno, CA
Fresno Unified School District, Fresno, CA
Tulare County Office of Education, Visalia, CA
University of California at Merced, Merced, CA
University of California at Santa Barbara, Santa Barbara, CA
Yosemite National Park, Yosemite, CA

New collaborations with the California Air Resource Board and with Agricultural Education (Future Farmers of America, Ag in the Classroom, 4H Club) are in the development stages. More about these plans is included in the final section on Future Projects.

Support for Projects and Schools

Fresno GLOBE continues its support for a number of student based programs and projects including:

The WildLink Project - http://www.wilderness.net/wildlink

WildLink is a collaborative effort of the Central and Southern Sierra Wilderness Education Project, the University of Montana Wilderness Institute, NASA's EOS Natural Resource Training Center, the University of California Office of the President, the National Park Service, the USDA Forest Service, the Yosemite Institute, GLOBE, and several other organizations.

WildLink is an interdisciplinary endeavor designed to deliver science, geography, and history lessons related to wilderness directly to culturally diverse high school students in California (and soon in Detroit, Michigan). Small groups of students take expeditions into the wilderness areas of Yosemite National Park and other areas of the Sierra Nevada where they take atmospheric, water, and vegetation data using GLOBE protocols; keep journals; take photographs; and learn about diverse cultural perspectives of wilderness including the Buffalo Soldiers http://www.shadowsoldier.org and Obata's Yosemite, by the Japanese artist.

There are 11 GLOBE high schools in the Fresno training area taking part in the WildLink Project. A program evaluation conducted May 20-21, 2001, featured students that described their experiences and how it had changed their lives. For most of them it was their first visit to the mountains.

La Joya Middle School, Visalia CA

GLOBE Teacher Stacey Chicoine put together a project for her students in June 2001, in which they looked at Land Use and Land Cover (LULC) changes over time in their community. Students analyzed and compared a 1984 Landsat TM scene with a 2001 Landsat 7 image. Although they were unable to examine the changes to the extent that Stacey desired the students learned some valuable techniques regarding image analysis and seasonal variation. They were also able to validate their community's claim of promoting "smart growth".

Outreach

Earth Day May 3 at Center for Advanced Research and Technology, Clovis CA
Teach the River Symposium Feb. 23 at Center for Advanced Research and Technology, Clovis CA
CREEC Environmental Education Plan Roll Out, FUSD Science Offices, UC Center, Fresno CA
Presentation at Hartnell College Monterey Bay Science Project Science and Math Symposium, Salinas CA

Future Projects

Statewide Ozone Study

Fresno GLOBE has received $15,000 from the California Air Resource Board to purchase instruments and conduct teacher training in the new GLOBE ozone protocol. GLOBE teachers throughout the San Joaquin Valley from Bakersfield to Sacramento and the San Francisco Bay area will join the collaborative project begun by Henry Ortiz, the Partnership Coordinator in Los Angeles.

Agricultural Education

The Fresno GLOBE Training Team is developing workshop models that are oriented to meeting the needs and complement the existing educational programs of Ag in the Classroom, Future Farmers of America and the 4H Club.

Trainers Kruse and Williams are creating protocols and learning activities for students to conduct Climatic Water Budget Analyses, making use of measured GLOBE data encompassing actual and potential evapotranspiration, climate classification, indices of moisture and aridity, continentality, soil water-holding capacity and net primary productivity. These investigations along with the student constructed graphing and analysis are the next logical extension to GLOBE data currently being collected and a powerful tool for a more in depth understanding of the relationships between atmosphere, climate, soils, hydrology and land cover.

Aerosols and Air Quality in the Valley

Agriculture in California has come under new mandates regarding emissions from old diesel engines used for pumping groundwater and for particulate matter impacting air quality from cultivation practices. Other contributors are industries located in the San Francisco Bay area. Rather than letting this become another “us versus them” situation that pits agriculture against the environment, we see GLOBE as an opportunity to focus the varied interests toward working together, looking at the atmosphere in terms of “air sheds”, downstream effects, economic impacts on health and crop production, etc. Currently students in Boston are investigating connections between asthma in children and their air quality.

Watershed Investigations and Mapping

Trainers Kruse and Williams recently completed an intensive one-week course sponsored by ESRI, Inc. of Redlands and the USGS. Preparation of templates for GLOBE students to initiate long-term investigations of our two major river systems is underway. This will be expanded to include biogregion studies from the high desert across to the Pacific Ocean as part of the Central California Transect (CCAT) Project.

U.S. Partner Report

Grand Valley State University

Dr. Janet Vail
Research Associate/Senior Program Manager
Robert E. Annis Water Resources Institute
Grand Valley State University
118 Padnos Hall, 1 Campus Drive
Allendale, MI 49401
Telephone: (616) 895-3048 Fax: (616) 895-3864
Email: vailj@gvsu.edu

The Grand Valley State University (GVSU) GLOBE partnership is a joint effort of the GVSU Annis Water Resources (GVSU-AWRI) in cooperation with the GVSU Regional Math and Science Center. The partnership offers teacher workshops and technical support for GLOBE teachers as well as opportunities for students to do GLOBE activities in the classrooms of the GVSU Lake Michigan Center on the shoreline of Muskegon Lake near Lake Michigan. A highlight of the GVSU GLOBE training is training in hydrology protocols onboard the GVSU research and education vessel.

Twenty-six educators attended GLOBE training at GVSU funded by the Dart Foundation, the Grand Rapids Community Foundation, and the Wege Foundation. Another training session was held in Tustin, Michigan at a 4H Center. This was the 3rd year GVSU has put on trainings. The 2002 training will be held on August 5-9, 2002.

Through a grant from the Michigan Space Grant Consortium, GVSU-AWRI was able to pilot test the GLOBE ozone protocol. The "Implementation Of The GLOBE Surface Ozone Protocol" project enhanced the GLOBE program by field-testing a protocol and allowed GVSU-AWRI to:

Offer training sessions for GLOBE teachers to learn and practice the GLOBE surface ozone, atmosphere, and newly updated protocols;
Integrate the GLOBE program with Air & Waste Management Association Air Quality Environmental Resource Guides, Michigan Department of Environmental Quality (MDEQ) resources, and the Ozone Action Program;
Introduce the surface ozone protocol to the two groups of new teachers trained in our week-long GLOBE Certification workshops in 2001;
Foster a network of GLOBE teachers and provide programmatic support;
Provide a template for environmental education in air quality; and
Align air quality activities with the Michigan Curriculum Framework.

The project focused on Kent, Ottawa, and Muskegon Counties, but it has applicability to all of the GLOBE teachers in Michigan, especially those in the Detroit area where elevated ozone levels have been a concern. Coordination with the education committees of the West Michigan Clean Air Coalition (Ozone Action Program) and the Air & Waste Management Association was a priority.

Teachers attending the training sessions received resource materials on air quality, a supply of ozone test strips, use of ozone test strip scanners, and ongoing support from GVSU-AWRI staff for implementation of monitoring. There were also GVSU-AWRI visitations and consultations at individual schools.

Training took place in spring, summer, and fall. Specifically, there were two GLOBE workshops in July and August 2001. The July workshop was at Kettunen Center in Tustin (n=9) and the August workshop was at GVSU (n=26). Dr. Irene Ladd of NASA trained the teachers in the ozone protocol at the August workshop. Dr. Ladd and GVSU-AWRI staff visited the following schools to train teachers and their students: Whitehall High School, Cherry Creek Elementary, River Valley Academy, St. Marys, and Ferry Elementary (Figure 1). Dr. Ladd also visited the locations of the MDEQ ozone monitoring sites closest to the GLOBE schools. In November, a workshop on ozone monitoring was given at the annual Science and Math Update of the Regional Math and Science Center.

Figure 1. Visits to schools by Dr. Ladd of NASA

The field test results for the ozone scanner indicated that the method is "student friendly" but the readings were not always consistent with MDEQ measured ozone levels at the monitors closest to the schools. Dr. Ladd and Dr. Fishman are compiling a database of GLOBE ozone measurements, including those from west Michigan, which they are using to validate the technique.

There were some technical difficulties with one of the scanners and inconsistent coating of the chemicals on some of the test strips. Vistanomics, the manufacturer of the scanners, is addressing these issues. Nonetheless, it is the opinion of Dr. Ladd that the technique looks promising for student use and it has been included in the latest update of the GLOBE manual.

In 2002, the Michigan Space Consortium awarded another grant to AWRI. This project will allow GVSU to continue to serve as an effective GLOBE partner as it:

Assists schools in their environmental measurements
Fosters a network of GLOBE schools and offers programmatic support
Offers classroom experiences in GLOBE measurement protocols

Four middle school classes have already participated in working with GLOBE soil protocols at the GVSU Lake Michigan Center. We feel that this is an effective way to bridge the gap between the teacher training and actual implementation in the classroom. Additionally, three teachers are continuing to be assisted by GVSU in their ozone monitoring.

AWRI, along with the Regional Math & Science Center, assists existing GLOBE schools and trains teachers interested in the program. Essential to the effort is identification of specific needs of teachers, refresher training, and communication between local GLOBE schools. For more information about the implementation of GLOBE at GVSU, contact Janet Vail at 616-895-3048, vailj@gvsu.edu.

U.S. Partner Report

The Montana GLOBE Partner

Dr. Georgia A. Cobbs
Curriculum and Instruction
University of Montana
105 Education, School of Education
Missoula, MT 59812
Telephone : (406) 243-6052 Fax : (406) 243-4908
Email : gcobbs@selway.umt.edu
http://www.soe.umt.edu/globe/

This past year, GLOBE was promoted throughout Montana in several ways. Activities involved workshops, continued collaboration with the U.S. Forest Service and follow-up work with teachers. In our training workshops, we continue to divide teachers into groups based on the age level they teach, and tailor each part of the workshop to their level. Outreach continues with the availability of a GLOBE trainer, a wonderful retired science teacher, who visits schools and classrooms either for individual projects or for follow-up mini-workshops. We maintain our website where local teachers can share their ideas for GLOBE in their classrooms.

GLOBE Activities

This has been another exciting year for GLOBE in Montana with workshops, teachers competing, and outreach. Several different workshops have been given across the state: two involving pre-service teachers at The University of Montana, one at a U.S. Forest Service Facility and one funded by outside sources. Friendly competition between two teachers has encouraged an increase in data entry. Dr. Cobbs, the GLOBE Director in Missoula, has teamed up with Tribal Colleges as they begin implementing GLOBE as one form of outreach. While one of our GLOBE trainers continues to works with teachers across the state.

Schools within the Golden Triangle Curriculum Cooperative (GTCC) have become extremely active this year. Jennifer Schlepp, a middle school teacher in Conrad, held a GLOBE night with her sixth graders. As parents came in, students shared what they learned about the specific protocol they studied. Mark Ayers (Cut Bank) and **Error! Bookmark not defined.** (Shelby), both sixth grade science teachers have gotten into a competition over who enters the most data points! As archrivals in sports, the two are now vying to get the most GLOBE data entries. A fun and challenging way to get more data entered! One cooperative adventure experienced by several teachers in the GTCC involved filming by PBS (Public Broadcast System). Ayers and Robertson had a joint field trip. They joined their classes and ventured to Ayers' hydrology site to collect data and macro-invertebrates. PT^3 Preparing Tomorrow's Teachers with Technology videotaped this outing for PBS. It was broadcast in June and can be seen on the website http://pt3now.org/.

Mr. Jim Lane of Sheridan Public Schools continues to be an active GLOBE teacher and trainer. He coordinates the GLOBE workshop held at the USFS Ranger Station, allowing local ranchers and USFS folks share the importance of a good environment. Now in its fourth year, it continues to bring in folks from all over the country.

Outreach has many facets. Bill Peterson continues with follow-up activities visiting various schools. Contact with some teachers has made a difference in GLOBE reporting. Dr. Cobbs has already worked with one Tribal College, Chief Dull Knife in Lame Deer, MT, to implement its first GLOBE training. As the 2002-2003 year progresses, she hopes to continue in this support with other Tribal Colleges located in Montana.

Montana Training Team:
Dr. Christine Brick, River Geo-chemist, Clark Fork Watershed Project
Mr. Jim Lane, 4th Grade Teacher, Sheridan
Mr. Bill Peterson, Education Outreach Specialist

U.S. Partner Report

Our Lady of the Lake University GLOBE Partnership

Dr. Kathleen A. Ward
Curriculum Specialist
NASA Earth & Beyond Program
Our Lady of the Lake University
411 S.W. 24th Street
San Antonio, TX 78207
Telephone: (210) 434-6711 Fax: (210) 431-3927
Email : wardk@lake.ollusa.edu

Since May 31, 2001, Our Lady of the Lake University GLOBE Partnership has had three basic teacher-training series and one-day of advanced training. The sequencing of the days of training have varied as we try to fit our schedule to the needs of the teachers. In January we started a 5-Saturday teacher trainer session in partnership with Region 20 Service Center. Each Saturday we completed training for a domain. We felt this did not give teachers enough practice, so our summer teacher-training session was expanded to six Saturdays, which will be completed on Jan. 13, 2001. With six Saturdays we had many teachers miss one day of training, which they can make up at a later date. To avoid absences, our fall session will include Atmosphere, Hydrology, and Land cover/ Biology domains (one a month) on three Saturdays. The remaining three Saturdays will be in the spring with the fall-training participants involved in setting the dates. Next summer we will try a Wednesday, Thursday, Friday training session followed by a Monday, Tuesday, Wednesday session the next week

With the additional requirement of soil data for a GLOBE course and addition of site visits, more teachers have entered soil data. This GLOBE graduate course was preparation for a Texas Environmental Course in Fall 2001 that included spring and summer 2002 fieldtrips to all 10 regions of Texas with teachers using some GLOBE protocols. These classes were funded by a Texas Eisenhower Higher Education Board grant.

We have had five GLOBE teachers attend the Trainer-of-Trainers workshop in Corpus Christi this June. Three GLOBE teachers (two of them trainers) and an OLLU Trainer will present a workshop at the Texas Environmental Education Program Convention in San Antonio in September.